

ANSI/ISEA

104-1998 (R2009)

American National Standard
for Air Sampling Devices—
Diffusive Type for Gases
and Vapors in Working Environments

ANSI/ISEA 104-1998 (R2009)

**American National Standard for
Air Sampling Devices**

**Diffusive Type for Gases and Vapors
in Working Environments**

Secretariat

International Safety Equipment Association

Approved July 13, 1998 (reaffirmed February 18, 2009)

American National Standards Institute, Inc.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether they have approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review and users are cautioned to obtain the latest editions.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no persons shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

**International Safety Equipment Association
1901 North Moore Street, Suite 808, Arlington, Virginia 22209**

Copyright 2009 by International Safety Equipment Association
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.

Printed in the United States of America

Foreword (This Foreword is not part of American National Standard ANSI/ISEA 104-1998.)

This standard has been drafted to establish a voluntary standard for diffusive sampling devices. The purpose of this standard is to provide a means of continual testing of these devices for accurate performance in working environments to determine the concentrations of toxic gases and vapors in air.

Suggestions for the improvement of this standard are welcome. They should be sent to the ISEA, 1901 N. Moore Street, Suite 808, Arlington, VA 22209.

This standard was processed and approved for submittal to ANSI by the Canvass Method. The following organizations were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

AFL-CIO
Alliance for American Insurers
American Gas Association
American Industrial Hygiene Association
American Iron and Steel Institute
American Mining Congress
BASF Corporation
Bituminous Coal Operators Association
Chemical Manufacturer Association
Clayton Environmental Consultants
Compressed Gas Association
Edison Electric Institute
Goodyear Tire and Rubber Company
Industrial Safety Equipment Association
Instrument Society of America
International Brotherhood of Electrical Workers

International Chemical Workers Union
Kem Medical Products Corporation
Matheson - Kitagawa
Monsanto Company
National Fire Protection Association
National Institute for Occupational Safety
and Health
National Safety Council
Occupational Safety and Health Administration
Oil, Chemical and Atomic Workers Union
Safety Equipment Institute
Sensidyne, Inc.
United Auto Workers
United Mine Workers
United Steel Workers

Contents

SECTION	PAGE
1. Purpose, Practice, Rationale and Scope.....	7
2. Determination of Standard Compliance.....	7
3. References	8
4. Definitions.....	8
5. Test Apparatus and Calibration Procedures.....	9
6. Evaluation Parameters	10
7. Quality Control Requirements	14
8. Reporting and Labeling Requirements	14
Appendix	16

American National Standard for Air Sampling Devices--

Diffusive Type for Gases and Vapors in Working Environments

1. Purpose, Practice, Rationale and Scope

1.1 Purpose

This standard seeks to provide manufacturers and end users of diffusive samplers with guidance concerning the tests to be used in evaluating samplers for various air sampling applications.

This standard is not intended as a means of sampler classification, nor as a means by which the performance of different samplers can be strictly compared.

1.2 Practice

The standard includes evaluation parameters which are used to characterize diffusive samplers with respect to their ability to determine the concentrations of gases and vapors in working environments. The reporting and labeling requirements of this standard will permit informed users to properly select and use the subject devices in measuring time-weighted-average workplace exposures in compliance with exposure limit values (ELVs) and for other purposes.

1.3 Rationale

While this standard employs test methods similar to those described under Section 3, References, it differs from the others by: a) allowing a greater freedom in selecting the evaluation parameters, b) refraining from mandating specific performance requirements, and c) mandating detailed disclosure of performance results.

Since diffusive samplers will be used under various conditions (from extreme to mild environments) with a variety of objectives (from routine screening by employers to assessments of workplaces by regulators), the standard seeks to include all devices which are useful for a certain purpose rather than requiring that all devices included meet the requirements of all situations and environments. The disclosure features of the standard, including Evaluation Parameters and Test Report, are designed to permit users of samplers/monitors to select those devices meeting the requirements of their particular application.

1.4 Scope

For the purposes of this standard, diffusive sampling devices are categorized as follows:

Type A. Devices which provide on-site reading of time-weighted-average (TWA) gas or vapor concentration.

Type B. Devices which utilize a sorbent to collect an air sample and use laboratory analysis to determine time-weighted average (TWA) concentrations.

2. Determination of Standard Compliance

Compliance with this standard shall be established by the test report which details the test methods and evaluation parameters used in accordance with this standard. The testing laboratory is free to select test parameters (e.g., temperature, humidity, concentration, sampling time period) for the two-factor or multi-factorial tests listed in Section 6. However, this choice will impose